

**REMARKS**

This is a full and timely response to the outstanding non-final Office Action mailed April 13, 2004 (Paper No. 3). Upon entry of this response, claims 1-9, 11-26, and 28-33 are pending in the application. In this response, claims 1, 3, 5, 7-9, 11-13, 15-16, 19-22, and 28-30 have been amended, and claims 10 and 27 have been cancelled. Applicant respectfully requests that the amendments being filed herewith be entered and request that there be reconsideration of all pending claims.

1. **Allowable Subject Matter**

Applicant acknowledges the Examiner's indication in the Office Action that claims 2, 8, 14, 21, and 29 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. However, Applicant has not amended dependent claims 2, 8, 14, 21, and 29 to incorporate limitations of their parent claims because Applicant believes, for the reasons detailed below, that the parent claims as amended are each allowable over the cited art.

2. **Drawings Objections**

The Office Action states "Figure 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated." Figure 3 has been amended to correct this objection, and Applicant respectfully requests that the drawing objection be withdrawn.

3. **Specifications Objections**

The specification has been objected to as containing various informalities. The specification has been amended to correct these informalities. Although these amendments effect several changes to the specification, it is respectfully asserted that no new matter has been added.

4. Claim Objections

Claims 20-26 have been objected to for various informalities. Specifically, claim 20 has been objected to because “ ‘the a plurality’ should be –a plurality –.” Claim 20 has been amended according to the Examiner’s suggestion. Claim 21 has been objected to because: “‘had’ should be –has–.” Claim 21 has been amended according to the Examiner’s suggestion. Applicant respectfully requests that the claim objections be withdrawn.

5. Rejection of Claims 13, 16-20, and 23-26 under 35 U.S.C. §102

Claims 13, 16-20, and 23-26 have been rejected under §102(b) as allegedly anticipated by *Tzannes* (U.S. 6,498,808). Applicant respectfully traverses these rejections. A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983).

a. Claims 13 and 20

Applicant respectfully submits that *Tzannes* fails to teach, disclose or suggest at least the feature of “assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones” as recited in claims 13 and 20.

The Office Action alleges that Table 1 of *Tzannes* “illustrates that the bits assigned to each tone is different from the bits assigned to the adjacent tones.” (Office Action, paragraph 6.) Applicant respectfully asserts that this Table is simply an example BAT ordered by subchannel number, and it is mere coincidence that the bits per subchannel for one tone happen to be different from bits per subchannel for the adjacent tone. *Tzannes* teaches that the number of bits

assigned to each subchannel depends on the SNR of the subchannel (Col. 2, lines 45-60), but contains no teaching that the bits are assigned such that adjacent tones have a different number of assigned bits.

For at least the reason that *Tzannes* fails to disclose, teach or suggest “assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones,” Applicant respectfully submits that *Tzannes* does not anticipate claims 13 and 20 as amended. Therefore, Applicant requests that the Examiner’s rejection of claims 13 and 20 be withdrawn.

b. Claims 16 and 23

Applicant respectfully submits that *Tzannes* fails to teach, disclose or suggest at least the feature of “the first and second tones are selected based on correlated noise affecting the first and second tones” as recited in claims 16 and 23.

*Tzannes* discloses assigning bits to tones (subchannels) according to noise on each subchannels, so that channels with high noise have low numbers of bits assigned. (Col. 1, lines 61-65.) In contrast, Applicant’s claimed invention as defined by claims 16 and 23 selects specific tones from the entire set of tones, based on noise affecting these specific tones. Bits are then assigned to these specific tones such that adjacent tones have different numbers of assigned bits. Applicant respectfully submits that *Tzannes* does not disclose selecting specific tones for this bit assignment. Applicant also asserts, as argued above with regard to claims 13 and 20, that *Tzannes* does not disclose assigning bits with the result that adjacent tones have a different number of assigned bits.

For at least the reason that *Tzannes* fails to disclose, teach or suggest "the first and second tones are selected based on correlated noise affecting the first and second tones," Applicant respectfully submits that *Tzannes* does not anticipate claims 16 and 23 as amended. Therefore, Applicant requests that the Examiner's rejection of claims 16 and 23 be withdrawn.

c. Claims 17-19 and 24-26

Since claims 13 and 20 are allowable, Applicant respectfully submits that 17-19 and 24-26 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicant respectfully requests that the rejection of claims 17-19 and 24-26 be withdrawn.

6. Rejection of Claim 27

Claim 27 has been rejected under §103(a) as allegedly anticipated by *Helms et al.* (U.S. 6,144,695). Claim 27 is cancelled without prejudice, waiver, or disclaimer, and therefore, the rejection of this claim is rendered moot. Applicant takes this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicant reserves the right to pursue the subject matter of this cancelled claim in a continuing application, if Applicant so chooses, and does not intend to dedicate any of the cancelled subject matter to the public.

7. Rejection of Claims 1, 4-7, 10-12, 28, and 31-33 under 35 U.S.C. §103

Claims 1, 4-7, 10-12, 28, and 31-33 have been rejected under §103(a) as allegedly obvious over *Tzannes* (U.S. 6,498,808) in view of *Helms et al.* (U.S. 6,144,695). Applicant respectfully traverses these rejections. It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited

combination of references must disclose, teach, or suggest, either implicitly, all elements/features/steps of the claim at issue. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q. 2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

a. Claims 1 and 7

Applicant respectfully submits that claims 1 and 7, as amended, are allowable for at least the reason that the proposed combination of *Tzannes* in view of *Helms et al.* does not disclose, teach, or suggest at least the feature of a “bit and gain information configured to associate each of at least a portion of a plurality of tones with a bit number, wherein the bit number associated with a first one of the tones is different from the bit number associated with a second one of the tones, where the first one of the tones is adjacent to the second one of the tones” as recited in amended claim 1, or a “means for assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones” as recited in amended claim 7.

The Office Action alleges that Table 1 of *Tzannes* “illustrates that the bits assigned to each tone is different from the bits assigned to the adjacent tones.” (Office Action, paragraph 17). Applicant respectfully asserts that this Table is simply an example BAT ordered by subchannel number, and it is mere coincidence that the bits per subchannel for one tone happen to be different from bits per subchannel for the adjacent tone. *Tzannes* teaches that the number of bits assigned to each subchannel depends on the SNR of the subchannel (Col. 2, lines 45-60), but contains no teaching that adjacent tones are assigned different numbers of bits, as recited in amended claims 1 and 7.

*Helms et al.* also fails to teach, suggest or disclose at least a “bit and gain information configured to associate each of at least a portion of a plurality of tones with a bit number, wherein the bit number associated with a first one of the tones is different from the bit number associated with a second one of the tones, where the first one of the tones is adjacent to the second one of the tones.” *Helms et al.* teaches, at most, conventional tone ordering according to ANSI T1.413.

Accordingly, the proposed combination of *Tzannes* in view of *Helms et al.* does not teach at least the above-described features recited in amended claims 1 and 7. Since the proposed combination of *Tzannes* in view of *Helms et al.* does not teach at least the above-described features recited in amended claims 1 and 7, a *prima facie* case establishing an obviousness rejection by *Tzannes* in view of *Helms et al.* has not been made. Thus, claims 1 and 7 are not obvious under the proposed combination of *Tzannes* in view of *Helms et al.*, and the rejection should be withdrawn.

b. Claim 28

Applicant respectfully submits that claim 28, as amended, is allowable for at least the reason that the proposed combination of *Tzannes* in view of *Helms et al.* does not disclose, teach, or suggest at least the feature of “a first number of bits is assigned to each of the plurality of tones, and wherein the first number of bits assigned to each of the plurality of tones is different from a second number of bits assigned to each adjacent tone” as recited in amended claim 28.

The Office Action alleges that Table 1 of *Tzannes* “illustrates that the bits assigned to each tone is different from the bits assigned to the adjacent tones.” Applicant respectfully asserts that this Table is simply an example bit allocation table ordered by subchannel number, and it is mere coincidence that the bits per subchannel for one tone happen to be different from bits per

subchannel for the adjacent tone. *Tzannes* teaches that the number of bits assigned to each subchannel depends on the SNR of the subchannel (Col. 2, lines 45-60), but contains no teaching that the bits are assigned such that adjacent tones have a different number of assigned bits.

*Helms et al.* also fails to disclose, teach, or suggest at least the feature of “a first number of bits is assigned to each of the plurality of tones, and wherein the first number of bits assigned to each of the plurality of tones is different from a second number of bits assigned to each adjacent tone” as recited in amended claim 28. *Helms et al.* teaches, at most, conventional tone ordering according to ANSI T1.413.

For at least the reason that *Tzannes* fails to disclose, teach or suggest “assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones,” Applicant respectfully submits that *Tzannes* does not anticipate claim 28 as amended. Therefore, Applicant requests that the Examiner’s rejection of claim 28 be withdrawn.

c. Claims 4-6, 10-12, and 31-33

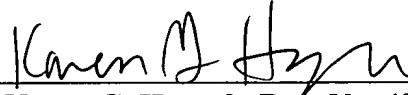
Since claims 1 and 7 are allowable, Applicant respectfully submits that claims 4-6, 10-12, and 31-33 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicant respectfully requests that the rejection of claims 4-6, 10-12, and 31-33 be withdrawn.

**CONCLUSION**

Applicant respectfully requests that all outstanding objections and rejections be withdrawn and that this application and presently pending claims 1-9, 11-26, and 28-33 be allowed to issue. If the Examiner has any questions or comments regarding Applicant's response, the Examiner is encouraged to telephone Applicant's undersigned counsel.

Respectfully submitted,

**THOMAS, KAYDEN, HORSTEMEYER  
& RISLEY, L.L.P.**

By: 

**Karen G. Hazzah, Reg. No. 48,472**

100 Galleria Parkway, NW  
Suite 1750  
Atlanta, Georgia 30339-5948  
Tel: (770) 933-9500  
Fax: (770) 951-0933

FIG. 3 (prior art)

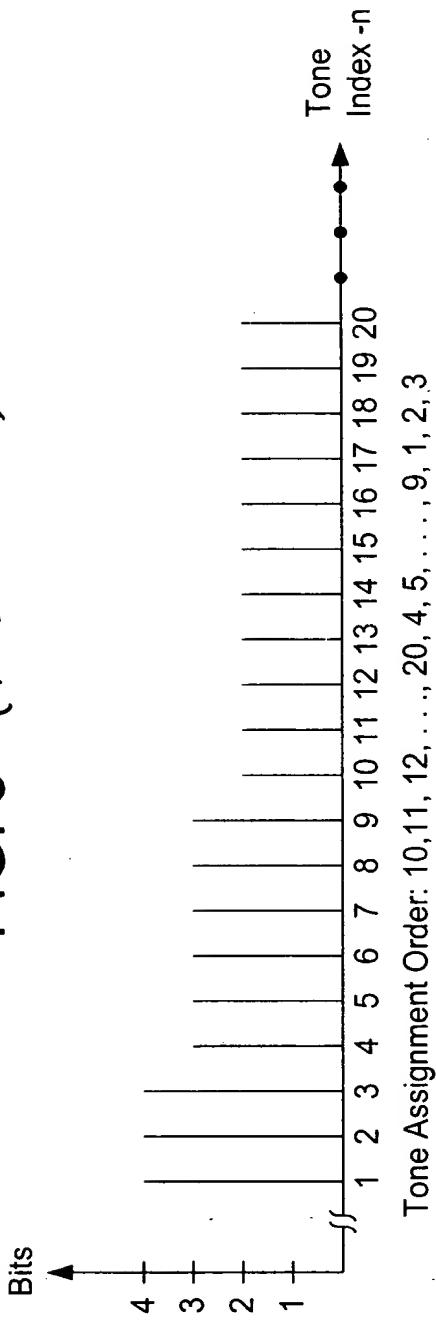


FIG. 4



FIG. 3

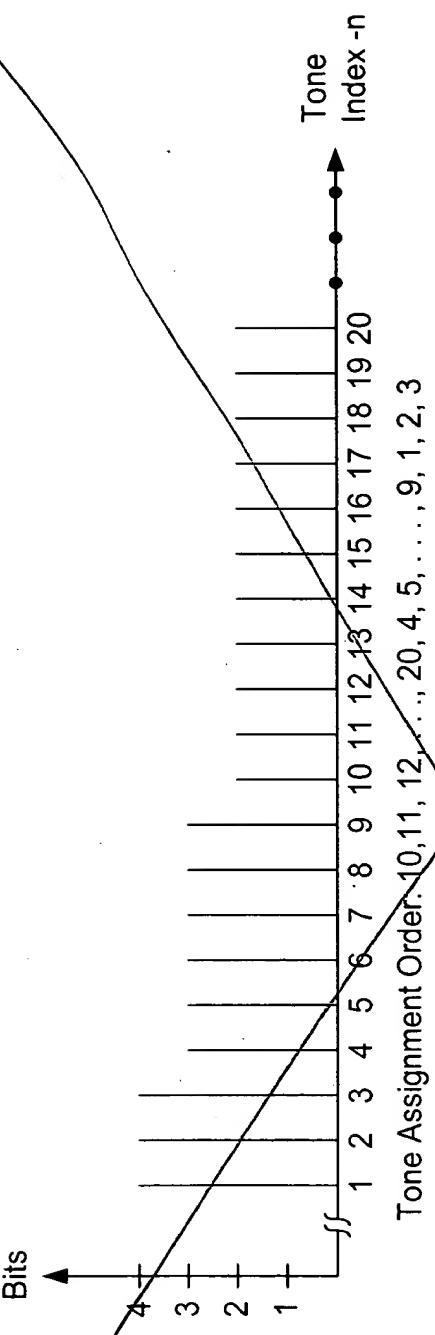


FIG. 4

